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Della Revecho
Della Revecho

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Cahill, et al.	Docket No.: AOL0095
Serial No: 10/772,843	Art Unit: Unassigned
Filed: 2/4/2004	Examiner: Unassigned

Title: AFFILIATIONS WITHIN SINGLE SIGN-ON SYSTEMS

14 January 2005

MAIL STOP: Office of Petitions
P O Box 1450
Alexandria, VA 22313-1450

PETITION FOR CORRECTION OF FILING DATE

The Applicant requests that the filing date of the above-referenced application be corrected due to an error made by the Patent Office. The Office has omitted Figures 1, 2 and 3 of the filed application.

The application was mailed via U.S. Express Mail including Figures 1-3. A copy of the application as filed, including all figures & IDS documents are enclosed along with the copy of the PTO date stamped Return Postcard, confirming receipt of all documents filed on 2/04/2004.

The Applicant requests that the filing date be corrected to 04 February 2004 since the date stamped postcard verifies receipt of the (3) three sheets of figures, by the PTO

The Commissioner is hereby authorized to charge the Petition Fee of $130 and any other fees to the Deposit Account 07-1445 (Order No. AOL0095). This paper is provided in duplicate.
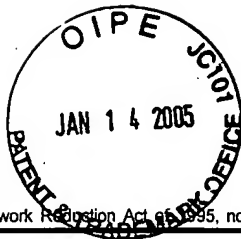
01/21/2005 AWONDAF1 00000019 071445   10772843
01 FC:1462   400.00 DA

Respectfully Submitted,

Julia A. Thomas
Julia A. Thomas
Reg. No. 52,283

Customer No. 22862

01/21/2005 AWONDAF1 00000017 071445   10772843
01 FC:1462   400.00 DA

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   Signature

Della Revecho

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Note: Each paper must have its own certificate of mailing, or this certificate must identify each submitted paper.

Attached to this coversheet please find the following documents:

-Copy of Notice of Incomplete NonProvisional Application (2 pages);
-Petition for Correction of Filing Date (1 page in duplicate)
-Copy of the return postcard and Express Mail stamped by the USPTO on 2/4/04 (1 page); ·
-Copy of the Entire Application as Filed on 2/4/04 (31 pages);
-Return Postcard

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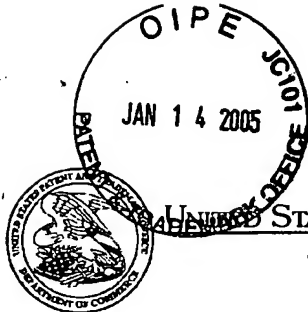
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/772,843	02/04/2004	Conor Cahill	AOL0095

22862
GLENN PATENT GROUP
3475 EDISON WAY, SUITE L
MENLO PARK, CA 94025

CONFIRMATION NO. 6050

FORMALITIES LETTER

OC000000013483213

Date Mailed: 08/09/2004

NOTICE OF INCOMPLETE NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

A filing date has NOT been accorded to the above-identified application papers for the reason(s) indicated below.

All of the items noted below **and a newly executed oath or declaration covering the items must** be submitted within **TWO MONTHS** of the date of this Notice, unless otherwise indicated, or proceedings on the application will be terminated *(37 CFR 1.53(e))*. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

The filing date will be the date of receipt of all items required below, unless otherwise indicated. Any assertions that the item(s) required below were submitted, or are not necessary for a filing date, must be by way of petition directed to the attention of the Office of Petitions accompanied by the $130.00 petition fee *(37 CFR 1.17(h))*. If the petition states that the application is entitled to a filing date, a request for a refund of the petition fee may be included in the petition. Petitions should be mailed to: Mail Stop Petitions, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

- The application was deposited without drawings. 35 U.S.C. 113 (first sentence) requires a drawing "where necessary for the understanding of the subject matter sought to be patented." *Applicant should reconsider whether the drawings are necessary under 35 U.S.C. 113 (first sentence).*

- The oath or declaration is unsigned.

Replies should be mailed to: Mail Stop Missing Parts

Commissioner for Patents

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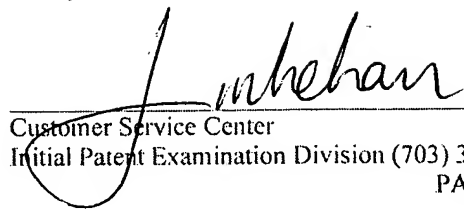ACKNOWLEDGE RECEIPT

AUG 1 2 2004

GLENN PATENT GROUP

A copy of this notice MUST be returned with the reply.

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Linehan

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Initial Patent Examination Division (703) 308-1202

PART 1 - ATTORNEY/APPLICANT COPY

United States Patent and Trademark Office (USPTO) Acknowledgement

Please acknowledge receipt of the enclosed document, listed below, by imprinting the USPTO date stamp in the space indicated and returning this postcard to the addressee indicated on the reverse.

Application of: Cahill, et al.

Title: Affiliations Within Single Sign-On Systems

Express Mail No: EV 378719946 US

Application No: Unassigned

Filing Date: Herewith (2/4/2004)

Atty. Docket No: AOL0095

Date Mailed: 2/4/2004

16018   U.S. PTO
10/772843

020404

Enclosed are the following:

1. Certificate of Express Mail (1 page)
2. Utility Patent Application Transmittal (1 page)
3. Fee Transmittal (1 page, in duplicate)
4. (19) Pages of Specification, Claims, and Abstract
5. (3) Sheets of Formal Drawings
6. Combined Declaration and Power of Attorney (2 pages)
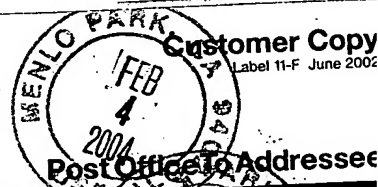7. IDS: 1449 Form and cited references

Fee: $824.00

Payment Type: Charge to USPTO Deposit Account

EV 378719946 US

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AOL0095

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COPY

In re Application of: Cahill, et al.   Docket No.: AOL0095

Serial No: Unssigned   Art Unit: Unassigned

Filed: Herewith (2/4/2004)   Examiner: Unassigned

Title: AFFILIATIONS WITHIN SINGLE SIGN-ON SYSTEMS

DATE: FEBRUARY 4, 2004

To: United States Patent and Trademark Office
Attn: Mail Stop Patent Application

Re: TRANSMITTAL UTILITY PATENT APPLICATION

Attached to this coversheet please find the following documents:

1. Utility Patent Application Transmittal (1 page);
2. Fee Transmittal (1 page, in duplicate);
3. Combined Declaration and Power of Attorney (2 pages);
4. (19) Pages of Specification, Claims, and Abstract;
5. (3) Sheets of Formal Drawings;
6. Combined Declaration and Power of Attorney (2 pages);
7. IDS, 1449 Form, and cited references
8. Return Postcard

Fee: $824.00   Payment Type: Charge to USPTO Deposit Account

COPY

UTILITY
PATENT APPLICATION
TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	AOL0095
First Inventor	Cahill, et al.
Title	Affiliations Within Single Sign-On Systems
Express Mail Label No.	EV 378719946 US

APPLICATION ELEMENTS
See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:
Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

1. [x] Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)

2. [x] Applicant claims small entity status.
See 37 CFR 1.27.

3. [x] Specification   [Total Pages 19]
(preferred arrangement set forth below)
- Descriptive title of the invention
- Cross Reference to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to sequence listing, a table,
  or a computer program listing appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

4. [X] Drawing(s) (35 U.S.C. 113)   [Total Sheets 3]

5. Oath or Declaration   [Total Sheets 2]
   a. [ ] Newly executed (original or copy)

   b. [ ] Copy from a prior application (37 CFR 1.63(d))
     (for continuation/divisional with Box 18 completed)

     i. [ ] DELETION OF INVENTOR(S)
     Signed statement attached deleting inventor(s)
     name in the prior application, see 37 CFR
     1.63(d)(2) and 1.33(b).

6. [ ] Application Data Sheet. See 37 CFR 1.76

7. [ ] CD-ROM or CD-R in duplicate, large table or
     Computer Program *(Appendix)*

8. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
   a. [ ] Computer Readable Form (CRF)

   b.   Specification Sequence Listing on:

     i. [ ] CD-ROM or CD-R (2 copies); or

     ii. [ ] Paper

   c. [ ] Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. [ ] Assignment Papers (cover sheet & document(s))
10. [ ] 37 CFR 3.73(b) Statement   [x] Power of
     (when there is an assignee)   Attorney
11. [ ] English Translation Document *(if applicable)*
12. [x] Information Disclosure   [x] Copies of IDS
     Statement (IDS)/PTO-1449   Citations
13. [ ] Preliminary Amendment
14. [x] Return Receipt Postcard (MPEP 503)
     (Should be specifically itemized)
15. [ ] Certified Copy of Priority Document(s)
     (if foreign priority is claimed)
16. [ ] Nonpublication Request under 35 U.S.C. 122
     (b)(2)(B)(i). Applicant must attach form PTO/SB/35
     or its equivalent.
17. [X] Other: Certificate of Mailing..................................
....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation   [ ] Divisional   [ ] Continuation-in-part (CIP)   of prior application No.: ....

Prior application information: Examiner _____   Art Unit: _____
For CONTINUATION OF DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation <u>can only</u> be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

[X] Customer Number: 22862   OR [ ] Correspondence address below

Name	
Address	
City	State Zip Code
Country	Telephone Fax

Name (Print/Type)	Michael A. Glenn	Registration No. (Attorney/Agent)	30,176
Signature		Date	February 4, 2004

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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FEE TRANSMITTAL
for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

| **TOTAL AMOUNT OF PAYMENT** | ($) 824.00 |

Complete if Known	
Application Number	Unassigned
Filing Date	Filed Herewith
First Named Inventor	Cahill, et al.
Examiner Name	Unassigned
Art Unit	Unassigned
Attorney Docket No.	AOL0095

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: **07-1445**

Deposit Account Name: **Glenn Patent Group**

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity			
Fee Code	Fee ($)	Fee Code	Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	770.00
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 770.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims	Fee from below	Fee Paid
Total Claims	23	-20** = 3	X 18.00 =	54.00
Independent Claims	3	-3** = 0	X 86.00 =	0.00
Multiple Dependent			=	0.00

Large Entity		Small Entity			
Fee Code	Fee ($)	Fee Code	Fee ($)	Fee Description	
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) ($) 54.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity			
Fee Code	Fee ($)	Fee Code	Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY

Name (Print/Type)	Michael A. Glenn	Registration No. (Attorney/Agent)	30,176	(Complete *if applicable*)
Signature				Telephone 650-474-8400
				Date February 4, 2004

Attorney Docket No. AOL0095

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name;

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Affiliations Within Single Sign-On Systems

the specification of which (check one) _X_ is attached hereto, or __was filed on _____
as Application Serial No. _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

===

I hereby claim foreign priority benefits under Title 35, United Sates Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)   Priority Claimed
                                                       Yes   No

_____   ____   ____
Number   Country   Day/Month/Year Filed

_____   ____   ____
Number   Country   Day/Month/Year Filed

===

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

MICHAEL A. GLENN, Reg. No. 30,176
JAMES R. BRAMSON, Reg. No. 41,632
DONALD M. HENDRICKS, Reg. No. 40,355
CHRISTOPHER PEIL, Reg. No. 45,005
IVY Y. MEI, Reg. No. 46,925
JULIA THOMAS, Reg. No. 52,283

SEND CORRESPONDENCE TO:

GLENN PATENT GROUP, 3475 Edison Way, Suite L, Menlo Park, CA 94025

===

Page 1 of 2

I hereby claim the benefit under Title 35, United States code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Ser. No.	Filing Date	Status: Patented, Pending, Abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first or sole inventor: _____ Conor Cahill _____

Inventor's signature _____   _____
                                                                              Date
Residence _____ 44900 Prentice Drive, Dulles, Virginia 20166 _____

Post Office Address ___ Same _____

Citizenship ___ United States of America _____

Full name of second joint inventor: _____ Christopher Newell Toomey _____

Inventor's signature _____   _____
                                                                              Date
Residence _____ 23694 Black Oak Way, Cupertino, California 95014 _____

Post Office Address ___ Same _____

Citizenship _____ United States of America _____

Full name of third inventor: _____ Andrew An Feng _____

Inventor's signature _____   _____
                                                                              Date
Residence _____ 1035 Colony Hills Lane, Cupertino, California 95014 _____

Post Office Address ___ Same _____

Citizenship _____ United States of America _____

Affiliations Within Single Sign-On Systems

BACKGROUND OF THE INVENTION

5

TECHNICAL FIELD

The invention relates to services that depend upon a federation or association operation. More particularly, the invention relates to a service infrastructure that

10 enables users to manage the sharing of their personal information across identity providers and service providers, as well as the use of personalized services.

DESCRIPTION OF THE PRIOR ART

15 A single sign-on service allows a user to access various secure domains with a single act of authentication. Examples of single sign-on services include:

- Microsoft®. NET Passport, which is one of the largest online authentication systems in the world, with more than 200 million accounts performs more than

20 3.5 billion authentications each month. Passport participating sites include Nasdaq, McAfee, Expedia.com, eBay, Cannon, Groove, Starbucks, MSN® Hotmail, MSN Messenger, and many more. Passport single sign-in service allows users to create a single set of credentials that can be used to access any site that supports a Passport service. The objective of the Passport single sign-in

25 service is to increase customer satisfaction by allowing Web site visitors easy

access without the frustration of repetitive registrations and forgotten passwords; and

5

- America Online's Screen Name Service, which is a single sign in service and registration helper that benefits AOL audiences and all other online uses. The Screen Name Service lets a user create a single, consistent Screen Name, as a personal "ID", which can be used to safely, securely, and conveniently access and personalize sites across the Web. The Screen Name Service solves the frustrating experience of balancing multiple accounts, identities, and passwords

10 for all the places visited on the Web. With the service, a user can have a single Screen Name and password to use to access and personalize sites across the Web. Whenever a user is online, it is only necessary to sign in once with your personal Screen Name to the AOL service or directly at a participating Web site and then visit popular Web sites without having to enter a different username and

15 password over and over.

- The Liberty Alliance Project (see http://www.projectliberty.org/), which is a consortium of more than 160 technology and consumer-facing organizations, that was formed in September 2001 to establish an open standard for federated

20 network identity.

Federated identity answers many of the inefficiencies and complications of network identity management that both businesses and consumers face in today's world. Federated identity allows users to link elements of their identity between accounts

25 without centrally storing all of their personal information.

In the context of federated identity, it would be advantageous to provide a type of entity that could be used to implement single sign-on functionality within a portal site, *i.e.* an affiliation comprising a group of service providers that have chosen to act as a single entity on the network from the point of view of authentication, federation, and

5   authorization. It would also be advantageous if such system allowed a user to associate with an affiliation, or group of providers, without having to perform a separate transaction for each and every sign-on in a network.

SUMMARY OF THE INVENTION

10

The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on the network from the point of view of authentication, federation, and authorization. This type of entity is used to implement functionality within a portal site, such as the

15   Yahoo (see http://www.yahoo.com) portal with a Travelocity (see http://www.travelocity.com/) travel section that acts as part of Yahoo and not as part of Travelocity.

In the preferred embodiment, there is an owner of the affiliation, *e.g.* Yahoo, that is

20   responsible for maintaining a list that shows which service providers are members of the affiliation, *e.g.* Travelocity, as well as any control structure or meta-data associated with the affiliation. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.

25

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block schematic diagram that shows service providers accessing services within a federated network;

5

Fig. 2 is a block schematic diagram that shows system entities and roles within a federated network; and

Fig. 3 is a block schematic diagram that shows service flow with affiliation within a

10 federated network according to the invention.

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20

25

DETAILED DESCRIPTION OF THE INVENTION

The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on

5 the network from the point of view of authentication, federation, and authorization. This type of entity is used to implement functionality within a portal site, such as the Yahoo (see http://www.yahoo.com) portal with a Travelocity (see http://www.travelocity.com/) travel section that acts as part of Yahoo and not as part of Travelocity. While the invention herein is discussed in connection with the Liberty

10 Alliance Project, those skilled in the art will appreciate that the invention is applicable to any network where such functions as authentication, federation and/or authorization are provided.

In the preferred embodiment, there is an owner of the affiliation, *e.g.* Yahoo, that is

15 responsible for maintaining a list that shows which service providers, *e.g.* Travelocity, are members of the affiliation, as well as any control structure or meta-data associated with the affiliation. For purposes of the discussion herein, meta-data comprises but are not limited to the collection of data, *e.g.* addresses, entry points, security, keys, option choices, etc., that the party must obtain from a second party to

20 be able to interact with the second party. For example, the Internet address of the entry point for a web service is a piece of meta-data. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.

25

The invention applies to any single sign-on system or other system that allows multiple points of access for a user who may have more than one identity for authorization of the user and, optionally, designees of the user, for each of said multiple points of access. Here, such trust as is established with said user at a point

5   of access is shared among multiple providers for purposes of authentication and authorization, even if the point of access does not share common authentication requirements, by the virtue of an affiliation between services at said point of access.

The presently preferred embodiment of the invention is implemented within an

10   architecture that provides a web services-based service infrastructure and that enables users to manage the sharing of their personal information across identity providers and service providers, as well as the use of personalized services. For example, a user is able to authorize a service provider to access his shipping address while processing a transaction. Principals can also use sophisticated clients

15   that support web services, in addition to traditional browser-oriented user agents.

As used herein, the term "web services" means Simple Object Access Protocol (SOAP: see http://www.w3.org/TR/SOAP/) over HTTP calls. SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It is

20   an XML-based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined data types, and a convention for representing remote procedure calls and responses. HTTP is well known in the art and is not discussed at length herein. The use of SOAP over HTTP

25   calls is discussed herein only for purposes of example, and not by way of limitation.

Those skilled in the art will appreciate that the invention herein is applicable to any service or application.

Architectural Components

5

Fig. 1 is a block schematic diagram that shows service providers accessing services within a federated network. The preferred embodiment comprises an architecture that comprises the components described in below:

10 **System Entities**

Identity and service providers, user/principal, user agent, etc. System entities assume roles.

15 There are three primary system entities:

- **Identity Provider** (IDP) authenticates, and vouches for, principals.

- **Service Provider** (SP) provides service to requestors.

20

- **Principals** are entities that can acquire a federated identity, and be authenticated and vouched for by an identity provider. For example, principals may comprise a user using a user agent, *e.g.* either a web browser or a smart web services client.

Services

A **service** is a grouping of common functionality. For example, a core profile service handles all interactions concerning user profile information. Services typically offer one or more methods that callers can use to manipulate the information managed by the service, and are typically scoped in the context of a particular principal

Schemas

Schemas describe the syntax and relationships of data. Each service defines a schema for its data. For example, the profile service defines schema elements such as "name," "address," "phone number," etc.

As shown in Figure 1, a principal 16 logs into an identity provider 14 and authenticates at a service provider 12 with an identity provider assertion. The service provider requests a service descriptor and assertion for service from the identity provider and the service is invoked.

System Entity Roles

Fig. 2 is a block schematic diagram that shows system entities and roles within a federated network. System entities may assume one or more roles, as shown below:

Web Service Provider (WSP)

Hosts personal web services, such as a profile service. WSC's invoke web service

5   methods at WSPs.

Web Service Consumer (WSC)

With the appropriate authentication and authorization, a WSC is able to access the

user's personal web services by communicating with the Web Service Provider's

10   endpoint. Web Service Consumers can be either hosted on an SP's server or on the

user's device.

Discovery Service (DS)

15   A service typically hosted by an IDP that enables WSC's to discover service

endpoint information regarding a user's personal web services.

As shown in Figure 2, a principal 16 logs into an identity provider 14 and

authenticates at a federated service provider 12 with an identity provider assertion

20   and a discovery service descriptor. A web service consumer 22 associated with the

service provider requests a service descriptor and assertion for service from the

discovery service 24. The web service consumer 22 invokes the service with a

service assertion via a web service provider 26.

Affiliations Within A Single Sign-On System

Fig. 3 is a block schematic diagram that shows service flow with affiliation within a federated network according to the invention. For purposes of the discussion herein,

5 an affiliation is defined as a group of SPs that have chosen to act as a single entity on the network from the point of view of authentication, federation and authorization. The invention establishes a single sign-on system within which such affiliation may cooperate. As discussed above, this type of entity is used to implement federation functionality, for example, within a portal site, such as a Yahoo portal with, for

10 example, a Travelocity travel section that acts as a part of Yahoo and not as a part of Travelocity.

Another example of an application to which the invention may be put comprises groups of companies that have different user entry points, but that still want to act as

15 a single entity, such as AOL/Time Warner sites si.com and cnn.com, where federating to the AOL Time Warner affiliation federates the user to each site within the affiliation.

Figure 3 shows the basic operation of an affiliation. As shown in Figure 3, a principal

20 16 logs into an identity provider 14. Here, the principal visits a first service provider SP1 12a and federates to the affiliation 30 defined service providers SP1 12a and SP2 12b. While only two service providers are shown in Figure 3, those skilled in the art will appreciate that any number of service providers may form part of an affiliation.

25

The principal may then visit any other member of the affiliation, *e.g.* SP2 12b, and with a single sign on request return SP2's assertion with affiliate information.

A web service consumer 22 associated with a service provider, in Figure 3 service
5   provider SP2 12b, requests a service descriptor and assertion for service from the discovery service 24, presenting SP2's assertion with affiliate information.   The discovery service checks SP2's affiliation and generates a service assertion based upon SP2's affiliation.   The web service consumer 22 invokes the service with a service assertion via a web service provider 26.

10

Rules/Policies

In the preferred embodiment, there is an owner of the affiliation that is responsible for maintaining a list that is available to the IDP and the DS showing which SPs are
15   members of the affiliation, as well as any control structure or meta-data associated with the affiliation.   Each affiliation preferably has a URL-based identifier that is unique within the single sign-on system in which the affiliation is defined.

SPs/WSCs within the single sign-on system may be members of multiple affiliations,
20   but they can only act with a single affiliation for any given transaction. For example, Travelocity could say that they were acting as part of the Yahoo Portal, or they could say that they were acting as part of the AOL Portal, but they could not claim to be acting as part of both at the same time. It is up to the SP to determine which affiliation that they are acting with at any given moment.

25

The IDP/DS verify that the claimed affiliation membership exists and is valid prior to allowing the transaction to proceed.

User actions associated with the affiliation apply to all entities within the affiliation,
5   *i.e.* a user federating with the affiliation automatically federates with all members of the affiliation and a user authorizing access to a service by the federation authorizes access to any member of the affiliation. Note that these actions only apply when the SPs/WSCs are acting as a member of the affiliation.

10   ***Principal Identifiers***

Principal identifiers may have the following semantics (such semantics are readily adapted by those skilled in the art as needed for use in other embodiments of the invention):

15

1. A name identifier that is unique for any SP<->Affiliation combination. *i.e.* if the same SP using the same SPID requests identity of the user through different affiliations, they receive different, unique IdPProvidedNameIdentifiers. For example, Travelocity, when acting as part of the Yahoo portal, receives a
20   different identifier than Travelocity when acting as part of the AOL portal.

This uniqueness requirement prevents a site from using the IdPProvidedNameIdentifier as a key to share information across different affiliations.

25

2. A name identifier that is issued for the user by the IDP for each affiliation with which the user federates. This same Identifier is provided to all members of the affiliation when they are acting as a part of the affiliation.

5   3. A name identifier that is provided by the affiliation, wherein the owner of the affiliation may register an affiliation provided name identifier that is returned, in addition to the IdPProvidedAffiliaitionNameIdentifier.

The affiliation name identifiers provide a means for sites to handle the
10 automatic federation that take place with all members of the affiliation. For example, when a user federates with AOL Time Warner while at cnn.com, the user likely creates an account within AOL Time Warner's infrastructure. The Affiliation Name Identifier is used when the user goes to SportsIllustrated.com, a member of the AOL Time Warner affiliation, to access
15 that internal account.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of
20 the present invention. Accordingly, the invention should only be limited by the Claims included below.

25

CLAIMS

1. A method for establishing an affiliation within a single sign-on system, comprising the steps of:

5   defining a group of service providers that act as a single entity on a network for purposes of any of authentication, federation, and authorization;

defining an owner of said affiliation that is responsible for maintaining a list that shows which service providers are members of said affiliation, as well as any control structure or meta-data associated with said affiliation; and

10   providing a unique identifier for each affiliation within said single sign-on system in which said affiliation is defined.

2. The method of Claim 1, wherein said network comprises:

a web services-based service infrastructure in which users manage sharing of

15 their personal information across identity providers and service providers.

3. The method of Claim 2, wherein said web services implement a lightweight protocol for exchange of information in a decentralized, distributed environment.

20   4. The method of Claim 3, wherein said protocol comprises:

an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined data types, and a convention for representing remote procedure calls and responses.

25

5. An apparatus for establishing an affiliation within a single sign-on system, comprising:

a plurality of principals that can acquire a federated identity and be authenticated and vouched for by an identity provider;

5   an identity provider for authenticating and vouching for principals;

a plurality of service providers that act as a single entity with regard to authentication, federation and authorization to establish a single sign-on system within which such affiliation cooperates; and

at least one service associated with each service provider which comprises a

10   grouping of common functionality comprising at least one method that callers can use to manipulate information managed by said service with regard to a particular principal.

6. The apparatus of Claim 5, further comprising:

15   a web service provider for hosting personal web services which invoke web service methods at said web service provider.

7. The apparatus of Claim 6, further comprising:

a web service consumer for accessing a user's personal web services by

20   communicating with said web service provider.

8. The apparatus of Claim 7, further comprising:

a discovery service for enabling said web service consumer to discover service information regarding a user's personal web services.

25

9. A method for establishing an affiliation within a single sign-on system, comprising the steps of:

defining a group of service providers that act as a single entity on a network for purposes of any of authentication, federation, and authorization;

providing a plurality of principals that can acquire a federated identity and be authenticated and vouched for by an identity provider; and

providing an identity provider for authenticating and vouching for principals.

10. The method of Claim 9, further comprising the steps of:

a principal logging into said identity provider;

said principal visiting a first service provider and federating to said group; and

said principal then visiting any other service provider within said group.

11. The method of Claim 9, further comprising the step of:

defining an owner of said affiliation that is responsible for maintaining a list that shows which service providers are members of said affiliation, as well as any control structure or meta-data associated with said affiliation.

12. The method of Claim 9, further comprising the step of:

providing a unique identifier for each affiliation within said single sign-on system in which said affiliation is defined.

13. The method of Claim 9, further comprising the step of:

providing a discovery service for enabling a web service consumer to discover service information regarding a user's personal web services.

14. The method of claim 13, further comprising the step of:

    providing a web service consumer associated with a service provider for requesting a service descriptor and assertion for service from said discovery service and for presenting an assertion from said other service provider with affiliate information.

15. The method of Claim 14, further comprising the step of:

    said discovery service checking said other service provider affiliation and generating a service assertion based upon said other service provider affiliation.

16. The method of Claim 15, further comprising the step of:

    said web service consumer invoking a service with said service assertion via a web service provider.

17. The method of Claim 9, wherein said group has an identifier that is unique within a single sign-on system in which said group is defined.

18. The method of Claim 9, wherein service providers within a single sign-on system may be members of multiple groups, but can only act with a single affiliation for any given transaction.

19. The method of Claim 9, wherein a user federating with a group automatically federates with all members of said group.

20. The method of Claim 9, wherein a user authorizing access to a service by said federation authorizes access to any member of said group.

21. The method of Claim 9, further comprising the step of:

    providing a unique identifier for any service provider/group affiliation. wherein if a same service provider using a same service provider identity requests an identity of a user through different group affiliations, said service provider receives different, unique identifiers for each group affiliation.

22. The method of Claim 9, further comprising the step of:

    providing a same identifier to all members of said group when they are acting as a part of said group affiliation.

23. The method of Claim 9, further comprising the step of:

    providing an affiliation name identifier for allowing sites to handle an automatic federation that take place with all members of said group.

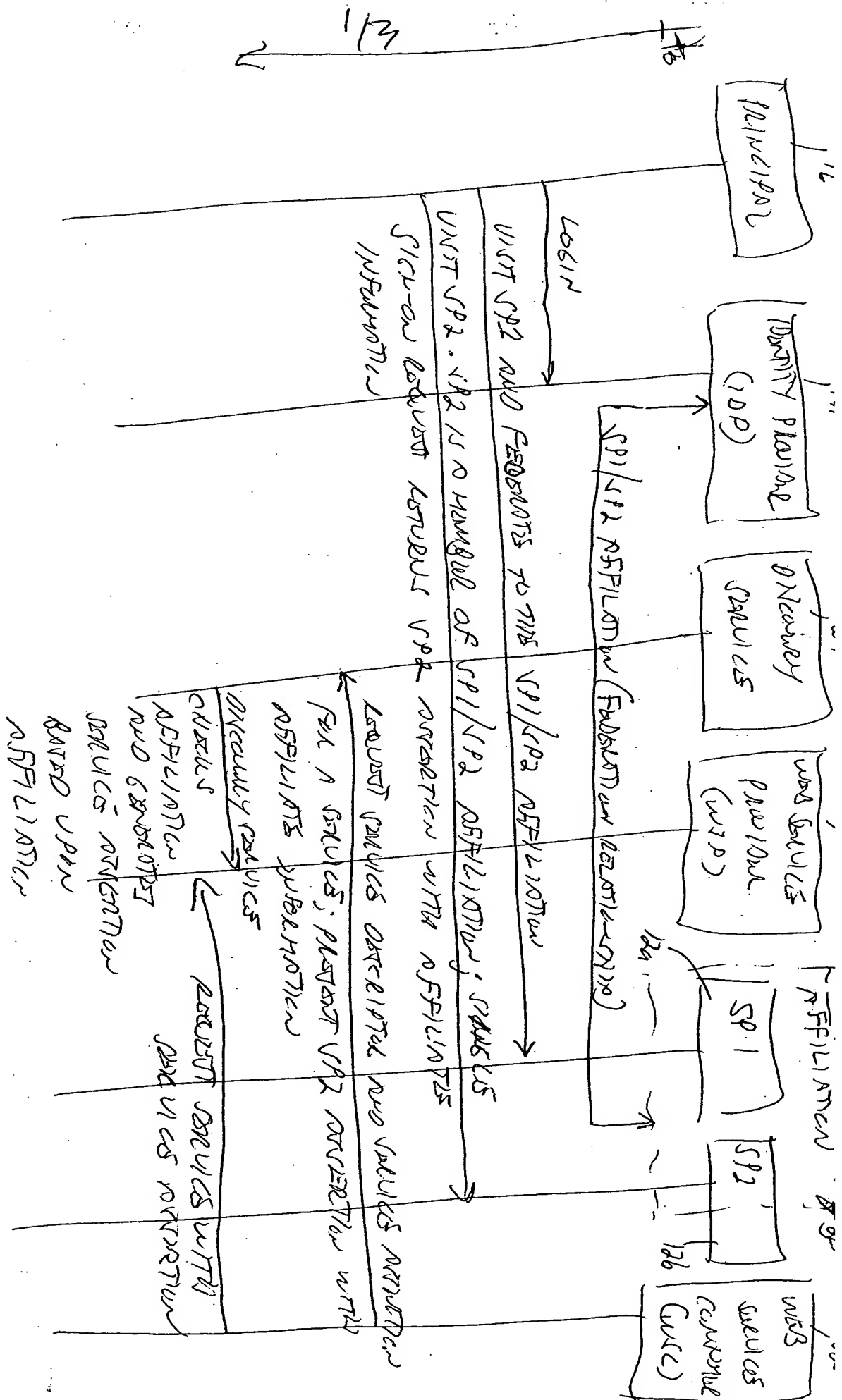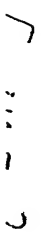# Affiliations Within Single Sign-On Systems

ABSTRACT

5

The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on a network from the point of view of authentication, federation, and authorization. This type of entity is used to implement functionality within a portal site, such as the

10 Yahoo (see http://www.yahoo.com) portal with a Travelocity (see http://www.travelocity.com/) travel section that acts as part of Yahoo and not as part of Travelocity. In the preferred embodiment, there is an owner of the affiliation that is responsible for maintaining a list that shows which service providers are members of the affiliation, as well as any control structure or meta-data associated with the

15 affiliation. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.

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PRINCIPAL

IDENTITY PROVIDER (IDP)

DISCOVERY SERVICE

WEB SERVICE PROVIDER (WSP)

SP1

SP2

WEB SERVICE CONSUMER (WSC)

LOGIN

VISIT SP2 AND PRESENTS TO THIS SP1/SP2 AFFILIATION

VISIT SP2. SP2 IS A MEMBER OF SP1/SP2 AFFILIATION; SEARCHES SIGN-ON REQUEST BETWEEN VSP2 ASSERTION WITH AFFILIATE INFORMATION

SP1/SP2 AFFILIATION (FEDERATION REGISTRATION)

REQUEST SERVICES DESCRIPTED AND SERVICES ASSOCIATED WITH AFFILIATE

FOR A SERVICE; PRESENT VSP2 ASSERTION WITH AFFILIATE INFORMATION

DISCOVERY SERVICE

CHECKS AFFILIATION AND ASSOCIATES SERVICES ASSOCIATED BASED UPON AFFILIATION

REQUEST SERVICES WITH SERVICES ASSERTION

FIGURE 1 (PRIOR ART)

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FIGURE 2 (PRIOR ART)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Cahill, et al.　　　　　　**Docket No.:** AOL0095

Serial No. : Unassigned　　　　　　　　　　**Art Unit:** Unassigned

Filed: Herewith (2/4/2004)　　　　　　　　　**Examiner:** Unassigned

Title: Affiliations Within Single Sign-On Systems

February 4, 2004

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents

Mail Stop IDS

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This Information Disclosure Statement is submitted:

(X)　　under 37 CFR 1.97(b), or

　　　　(within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)

( )　　under 37 CFR 1.97(c) together with either a:

　　( )　　Certification under 37 CFR 1.97(e), or

　　( )　　a $220.00 fee under 37 CFR 1.17(p), or

　　　　　(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

( )　　under 37 CFR 1.97(d) together with a:

　　( )　　Certification under 37 CFR 1.97(e), and

　　( )　　a $220.00 fee under 37 CFR 1.17(d)(2)(ii), and

　　( )　　a $130.00 petition fee set forth in 37 CFR 1.17(i)(1)

　　　　　(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)
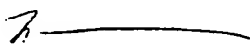
1

(X)   The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 07-1445 (Order No. AOL0095). A copy of this sheet is enclosed for accounting purposes.

(X)   Applicant(s) submit herewith Form PTO 1449 -- Information Disclosure Citation together with copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.25.

( )   A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individual(s) designated in 37 CFR 156(c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

Respectfully Submitted,

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Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty. Docket No. AOL0095 Applicant: Cahill et al Filing Date: Herewith	Serial No.: Unassigned Group: Unassigned

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub- class	Filing Date
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Foreign Patent or Published Foreign Patent Application

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	J	1117204	7/18/01	EP	H04L	9/32	X	
	K	1117207	7/18/01	EP	H04L	9/32	X	
	L	1217549	6/26/02	EP	G06F	17/30	X	
	M	1220510	7/3/02	EP	H04L	29/06	X	
	N	1241596	9/18/02	EP	G06F	17/30	X	

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	P	C. Ellison, B. Frantz, B. Lampson, R. Rivest, B. Thomas, SPKI Certificate Theory T. Ylonen; Network Working Group, The Internet Society; September 1999
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	gg	Ellison, C.; <u>SPKI Requirements</u>; Network Working Group, The Internet Society; September 1999

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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